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☞See advertisement on last page.

Poetry.

ROGER THE POET'S WISH.

Mine be a cot beside the hill;
A bee-hive's hum shall soothe my ear;
A willowy brook, that turns the mill,
With many a fall shall linger near.

The swallow oft beneath my thatch,
Shall twitter from her clay-built nest;
Oft shall the pilgrim lift the latch,
And share my meal, a welcome guest.

Around my ivied porch shall spring,
Each fragrant flower that drinks the dew;
And Lucy, at her wheel, shall sing,
In russet gown and apron blue.

The village church among the trees,
Where first our marriage vows were giv'n,
With merry peals shall swell the breeze,
And point with taper spire to heaven.

JAMIE'S ON THE STORMY SEA.

Ere the twilight bat was flitting,
In the sunset at her knitting,
Sang a lovely maiden, sitting
Underneath her threshold tree;
And ere daylight died before us,
And the vesper star shone o'er us,
Fitful rose her tender chorus,
"Jamie's on the stormy sea."

Warmly shone the sunset glowing,
Sweetly breath'd the young flowers blowing;
Earth, with beauty overflowing,
Seemed the home of love to be,
As those angel tones ascending,
With the scene and season blending,
Ever had the same low ending,
"Jamie's on the stormy sea."

Curfew bells remotely ringing,
Mingled with that sweet voice singing,
And the last red ray seemed clinging,
Lingering on tower and tree—
Nearer as I came, and nearer,
Finer rose the notes and clearer,
Oh, 'twas heaven on earth to hear her—
"Jamie's on the stormy sea."

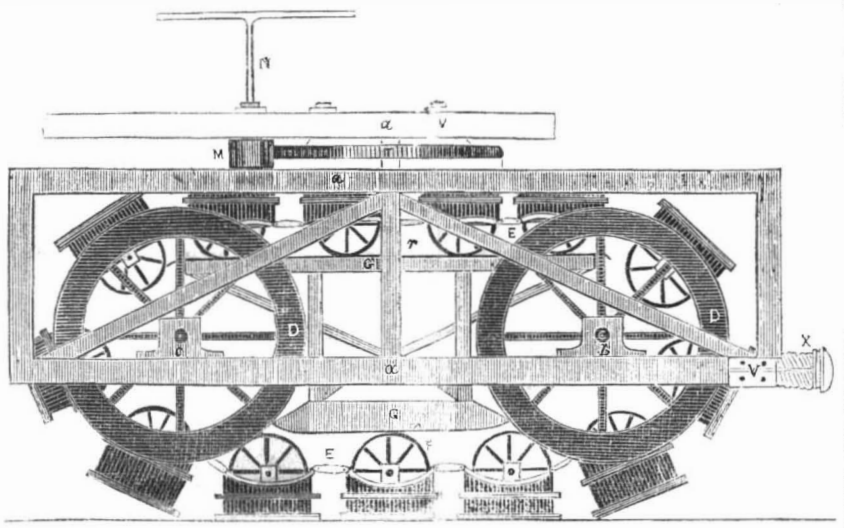
Blow ye west winds! blandly hover
O'er the bark that bears my lover;
Gently blow and bear him over
To his own dear home and me;
For, when night winds bend the willow,
Sleep forsakes my lonely pillow,
Thinking of the lonely billow—
"Jamie's on the stormy sea."

How could I but list, but linger,
To the song and near the singer,
Sweetly wooing Heaven to bring her
Jamie from the stormy sea.
And while yet her lips did name me,
Forth I sprang, my heart o'ercame me—
"Grieve no more, sweet, I am Jamie—
Home returned to love and thee"

True Virtue.

There is no virtue that adds so noble a charm to the first traits of beauty, as that which exerts itself in watching over the tranquility of an aged parent. There are no tears that give so noble a lustre to the cheek of innocence, as the tears of filial sorrow.

IMPROVEMENTS IN DIMINISHING DRAUGHT AND FRICTION ON CARRIAGES



Our readers may remember having seen accounts of a series of paddles being used on an endless chain moving over friction pullies along the side of a steam boat, as a superior mode of propulsion to that of the paddle wheel. We venture, however, to make the assertion, that to no mind but that of Mr. Wrigg, of Upper Holloway, England, was the idea ever entertained of propelling carriages upon the same principle. As we like to present things new to our readers so that they might see both the foolish and useful of modern as well as old invention, we request attention to this singular and lately patented invention, and we have no doubt but the query will be made, "how does such patents pay where so much is paid for them?" It is a subject of wonder to ourselves, but that they do pay is beyond a doubt.

This invention is alleged to diminish draught and friction in carriages and other conveyances, by constructing every description of carriage in such a manner, and providing it with such appendages that its weight shall always be borne by rails attached to the carriage, resting or moving on one or more of an endless chain of friction wheels caused to revolve by the traction or propulsion of the carriage, in a longitudinal direction, whether such carriage move on prepared or unprepared ground or not, and whether it is propelled by steam or any other power.

Fig. 1, represents a side elevation of a carriage, constructed according to this invention. *a a*, the carriage framing; C C, are solid cranked axles which revolve in brasses, *b b*; D D, are deeply flanged tumblers, made fast to hollow axles, *c c*, which encircle the solid axles C C; E E, are links of the endless chain or series of railway friction wheels, F F, which with their pedestals, revolve round the tumblers D D; G G, is a frame fixed between the tumblers, to which the stationary rails, V, are attached, and which frame may be either flanged or plane. A side elevation of one of the axles, C C, together with transverse elevation of one of the tumblers D D, are separately given on an enlarged scale, in figs. 2 and 3. C, is the crank axle, and *c*, the hollow axle, which encircles it; D, is the tumbler which is firmly attached to the hollow axle, *c*; *d d*, are the flanges; *f*, is a clutch by which the hollow axle, *c*, may be made fast to, or detached from, the solid axle C, at pleasure; *g g*, are tappets attached to the tumblers, in such positions that as the tumbler revolves they catch into the links E E, of the endless chain, the links of which fit into the space between the flanges *d d*, and rest upon the surfaces *e e*; one one side of the inner flange, *d*, there is a friction drum *h*, which is in one piece, attached to the tumbler, D, and revolves with it; from this drum a belt is carried to a level which is under the control of the conductor of the carriage, so that when the tumbler is freed from the main axle, C, by the application of the clutch, *f*, as aforesaid, the conductor can, by acting on the belt and friction drum, very quickly check the speed of the tumbler, or bring it to a state of rest. The space intervening between the two opposite sets of wheels being appropriated to the accommodation of passengers or goods, or if the carriage is not designed to afford such accommodation to be employed in drawing or propelling passenger and goods vehicles, the intervening space may be occupied by the steam engine or other motive agent employed. M N T and V, are the parts of the machinery, by which the two parts of the carriage are coupled with each other, the run shown by the engraving being the forepart of the machine. M, is a pinion fixed to the underneath side of one of the cross pieces of the frame *a*, which is common to both; the action of which is prolonged upwards through the cross piece and terminates in a hand lever N; T, is a cog-wheel attached to the top of the frame-work, *a*, represented by the engraving, into which the pinion M, takes; V, is a circular ring levelled outwards, which fits into the corresponding level edge raised on the top face of the cog-wheel, and is made fast at top to the carriage frame, *a*; X X, are buffers which act against spiral springs, coiled around their respective shafts, which shafts play into sockets attached to the side of the frame.

For Figs. 2, 3 and 4, see page 356.

The Dead Sea.

The London Athenæum of a recent date, contains a history of the visit of a British naval officer and party to this remarkable body of water. The party traversed it in a boat, and took various soundings in it, none of which indicated that unfathomableness which it is customary to attribute to this sea; the greatest depth being less than two hundred fathoms. Nothing else of interest can be elicited concerning it.

A Mathematician's Idea of Honor.

A graduate of Cambridge gave another the lie, and a challenge followed. The mathematical tutor of this College, the late Mr. V——, heard of the dispute, and sent for the youth, who told him he must fight.—"Why," said the mathematician, "He gave me the lie." "Very well, let him prove it, if he proves it, you do lie, and if he does not prove it, he lies. Why should you shoot one another? Let him prove it."

RAIL ROAD NEWS.

Chicago and Galena Railroad.

Messrs. Ogden, and Turner, of Chicago, have returned to that place from the East, having the iron for the above road. A portion of it is already on the way, and it is contemplated to have 15 or 20 miles of the road, westward from Chicago, in active operation the present season. This work is one of no inconsiderable importance, not only to Chicago but to the Lake interests.

The earnings of the Long Island Railroad for the first nineteen days of July are 10,800 dollars, showing about the same results as during the same time last year.

The Macon and Western Railroad Company of Georgia have declared a dividend of $2 per share.

A Church turned into a Railroad.

The ancient collegiate church of Edinburg, has been purchased by the North British Railway Company for a wagon shed. The tombs of the Scottish Queens, which will have to be removed, will cost the company seventeen thousand pounds.

So much for dead men's bones. A dead king is no more than a new Railroad Car.

The telegraph from Portland to Bangor, is going rapidly forward. They are putting up the posts along the whole route. It is to be extended to Calais, during September, when the people of New Brunswick and Nova Scotia will probably be prepared to complete the last link to Halifax.

A Cat taking a Railroad Ride.

A remarkable journey was performed by a cat on the Auburn and Rochester Railroad a few days since. As the freight train east, stopped at the several way stations, the mewing of a cat was heard, and on reaching Fisher's an investigation was gone into, resulting in the discovery that a cat was within one of the plate wheels, which were hollow, and having three openings about the size of a man's fist. Poor Puss had made her way into one of these holes before the starting of the train, and being unable to make her escape, had been carried fifteen miles, making in that distance 14,666 revolutions. On being relieved from her uncomfortable position she manifested no particular uneasiness, but took it very coolly. We venture to say, that none of her race have ever performed a similar feat.

Rock Salt for Horses.

For horses or cattle when tied up, a piece four or six pounds weight should be put in the manger or trough for them to lick at pleasure, as servants often neglect to mix it with their food: but when in the field or yard, one large lump in a bucket will be sufficient. —Sheep should never be without several pieces in a long trough, so that several can get to it at the same time. The expense is so very trifling, that the owners are amply rewarded by seeing their stock thriving so well.

Singular Restitution of a Bible.

During the war which resulted in our national independence, a band of English soldiers landed at Elizabeth Town Point, marched to Elizabeth Town, and plundered the village. A Mrs. —— was sitting at her window with an infant in her arms, reading her Bible. It was an old family Bible, containing the family records of births, marriages, deaths, &c. This lady and child were shot through the window, the house plundered, and the bible carried away. Now, strange as it may seem, some eight years since, said Bible was returned to the descendants of the family, after an interval of some sixty years. How it came, or where it had been, none of the family know.

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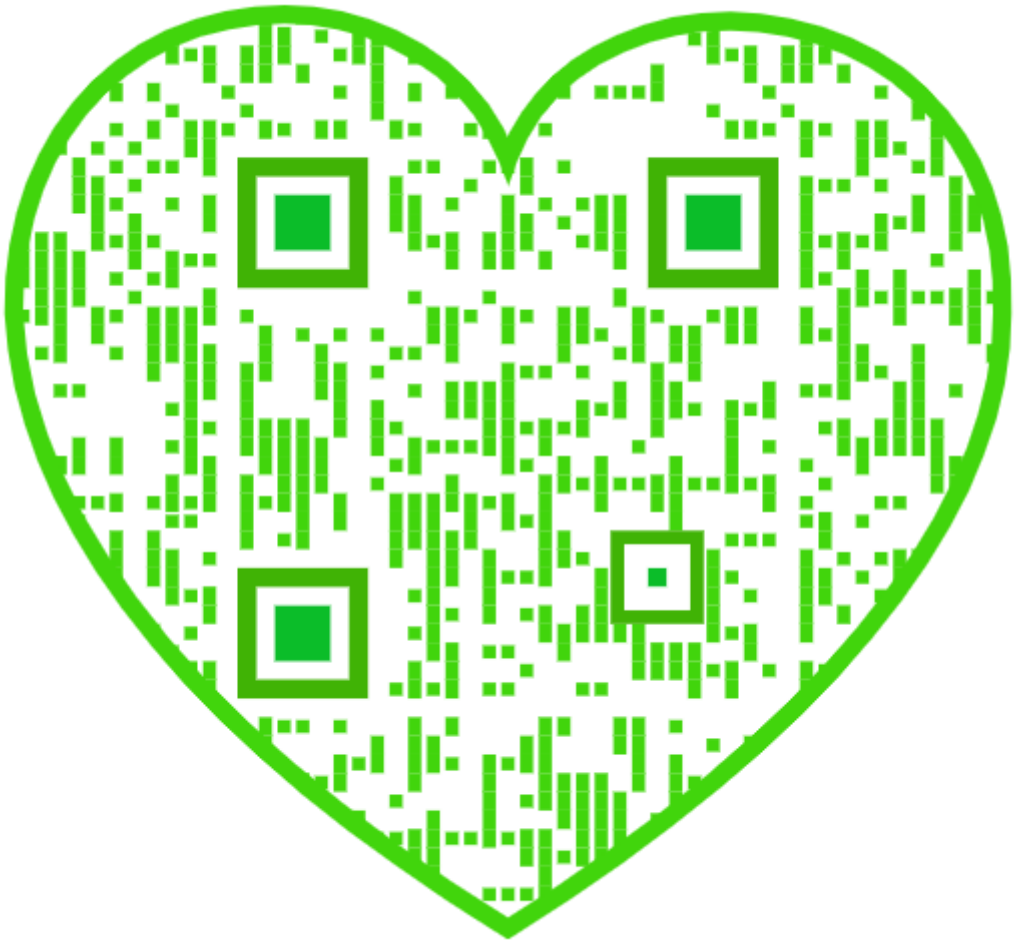

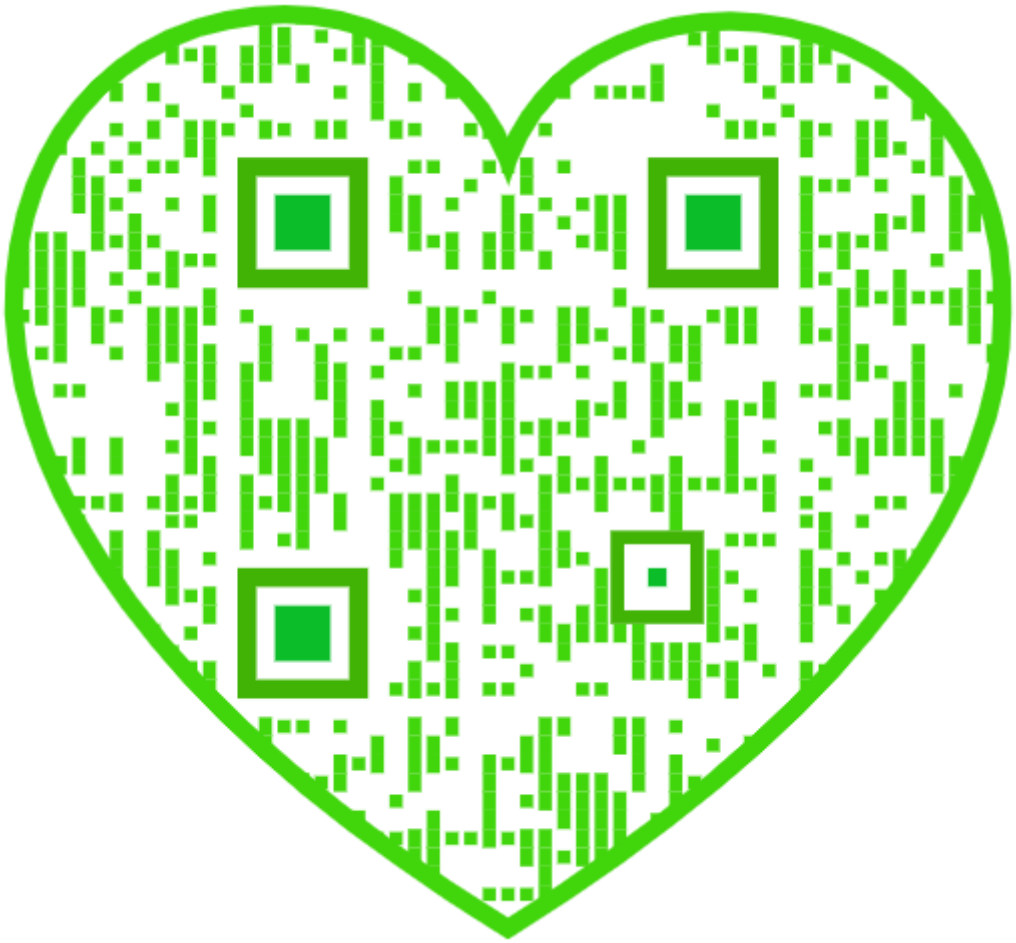

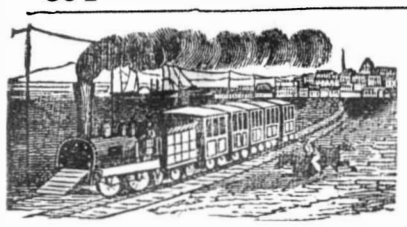

Patent Office Business.

We mentioned in our last that we should call attention in this number to the charges, &c. preferred against the Hon Mr. Burke, the Commissioner of Patents, by Assistant Examiner, Dr. Clinton. As these charges are now the subjec of investigation by a Committee of the House of Representatives, we forbear to say a word or express an opinion relative to the one side or the other. We have always been guided by a strict regard for fair even-handed justice, and this is to be expected from the Committee. Their decision will be given in due time.

It will perhaps throw some light upon the subject to many to be informed that the charges against the Commissioner have been twice already set aside in the Commissioner's favor, once by a board of Commission, and once by the Grand Jury. One of the charges against the Commissioner, is for allowing Mr. Vattemere copies of patents to be carried to Europe. As many do not know who Mr. Vattemere is, we would state that he is a French gentleman, and a devoted lover of science, and has presented valuable scientific works to a great number of our libraries. If the reciprocation of these favors by our government was wrong, then the Commissioner has been the first to present his own charge, for in his Report to Congress on the 1st of January last, he tells the whole story himself. At present we will say no more upon the subject.

Old Chemical Theories Revived.

Some of our readers, may, perhaps remember the leading outlines of a theory which originated with the celebrated Berthollet whilst he joined in the retinue of the youthful conqueror of the Mamelukes—the theory of mass as influencing the play of chemical affinities. The instance cited by the great French chemist it will be remembered, was the assumed decomposition of chloride of sodium by carbonate of lime in the Nitre lakes of Egypt, giving rise to carbonate of soda and chloride of calcium, the reverae of that which would have been obtained in the laboratory,—a result which was accounted for on the supposition that the large mass of carbonate of lime present in the banks of the lake enabled it to overcome the weaker chemical affinity of that earth for chlorine than of sodium for the same element. This theory has long been discarded, because it was thought to be disaccordant with the atomic theory, a necessity which we never could see ; and now, we observe that M. Gerhardt has in the course of certain inquiries concerning the nature of subsalts, recognized the theory of Berthollet once more.

New Surveying Instrument.

Mr. Walter M Wilson, C. E., down in the old Bay State, has invented an instrument for surveying and taking distances, equal if not superior in every respect to that mentioned in No. 43 Sci. Am., as having lately been invented in Scotland. We shall give a more detailed account of this invention in another number.

Taking a Likeness.

The Reading Gazette tells an amusing story of a tall, green youth from the country applying at that office to have his likeness taken. The editor sent him upstairs to the daguerreotypist; but, instead of stopping at the second story, he continued on to the third and got among the printers: and upon asking whether they took likenesses there, and getting an answer in the affirmative, the "devil" proceeded at once to the work. His face was carefully "rolled," and made as black as printer's ink could make it; but he "bolted," when they attempted to put him "to press," and rushed into the street in a most pitiable condition.

A new woolen factory has just been completed in Lapeer County, Michigan. It begins operations with nine hundred sacks of wool, supplied by the neighboring farmers.

Successful Treatment of Cholera in Circassia.

At a recent meeting of the Medico-Botanical Society of London, Mr. Guthrie read letters which had been received from Prince Woronzow, the Commander-in-Chief of the Russian forces in Circassia, and from Dr. Andreosky, his physician, detailing a new and successful plan of treating this formidable disease. It would appear that the Prince's attention was first drawn to the matter by noticing that a certain regiment of Cossacks suffered but slightly from cholera as compared with the other troops. On inquiry of the Colonel, he learned that the recovery of the Cossacks was attributed to the use of an elixir called the Elixir of Woronege—a preparation of a somewhat quackish description, the principal important ingredient of which was naphtha. Dr. Andreosky, finding the quantity of elixir in possession of the Colonel to be but small, determined to try naphtha by itself. He first used in mild cases of the cholera and choluraic diarrhœa, proving successful with these, he administered it in the more severe cases with equal advantage, and finally found it effected a cure even during the most extreme collapses. The dose which he gave, was from 10 to 15 and 20 drops in a glassful of wine, repeated if the first dose did not remain on the stomach, or if the symptoms required it, which was not often the case. The naphtha used in the Russian army is not the ordinary naphtha of the shops, but the mineral naphtha obtained from Beker on the shores of the Caspian. It should be of a white or rose color, and used without previously undergoing the process of distillation.

Benefits of Walking.

Dr. Urwin, in his book on Dental Diseases says: Last week I conversed with a veteran in literature and years, whose powers of mind no one can question, however they may differ from him in speculative points. This gentleman has preserved the health of his body and the soundness of his mind through a long course of multifarious and often depressing circumstances, by a steady perseverence in the habit of walking every day. He has survived for a very long period, almost all the literary characters who were his contemporaries, at which his own writings excited much public attention; almost all of them have dropped into the grave one after another while he has continued on in an uninterrupted course, but they were men of far less regular habits, and, I am obliged to add, of much less equanimity of mind; but the preservation of his equanimity has, I verily believe, been ensured by the unvaried practice to which I have referred, and which in others would prove equally available, if steadily and perseveringly pursued.

To Prevent Madness in Dogs.

On the under side of the tongue of every dog, running from the tip, where it is the largest, of an oblong form, down towards the root, about two and a half inches, where it connects with a vein, may be found a whitish nerve-like gland. This contains a secretion which is the virus or poison. In blood dogs it is always swollen, and in some way, either by bursting or some other process, fills the mouth with the virus which is always communicated to the wound inflicted by their teeth. The gland can be easily removed by slitting the skin about half an inch, by a lancet or penknife, and drawing it out with the fingers or a pair of forceps.

The preventive of all, however, is to destroy as many dogs as possible. For every ten dogs living, there is not one needed, and it is a divertation of humanity, to see ladies fondling and carrying lap-dogs in their gentle arms —The affection for the canine species should be transferred to the "human"—more lady-like, indeed.

Newspapers.

There are no newspapers in Syria or Persia; and in Egypt, the Barbary States and other countries, including 40,000,000 speaking the Arabic language, there is but one newspaper in the native tongue, and but three or four in the French or English, showing that there is nothing favorable in Mahommedanism to general improvement.

Remedies against Moths.

It is an old custom with some housewives to throw into their drawers every year, a number of fir cones, under the idea that their strong resinous smell might keep away the moth. Now, as the odor of these cones is due to turpentine, it occurred to Reaumur to try the effect of this volatile liquid. He rubbed one side of a piece of cloth with turpentine, and put some grubs on the other; the next day they were all dead, and strange to say, they had voluntarily abandoned their sheaths. On smearing some paper slightly with oil, and putting this into a bottle with some of the grubs, the weakest were immediately killed; the most vigorous struggled violently for two or three hours, quitted their sheaths and died in convulsions. It was soon abundantly evident that the vapor of oil or spirits of turpentine acts as terrible poison to the grubs. Perhaps it may be said that even this remedy is worse than the disease, but as Reaumur justly observes, we keep away from a newly painted room, or leave off for a few days a coat from which stains have been removed by turpentine, why therefore can we not once a year keep away for a day or two from rooms that have been fumigated with turpentine ?

It is however surprising, how small a quantity of turpentine is required; a small piece of paper or linen just moistened therewith, and put into the wardrobe or drawers a single day, two or three times a year, is a preservation against moths. A small quantity of turpentine dissolved in a little spirits of wine (the vapor of which is also fatal to the moth) will entirely remove the offensive odor, and yet be a sufficient preservative. The fumes of burning paper, wool, linen, feathers, and of leather, are also effectual, for the insects perish in any thick smoke; but the most effectual smoke is that of tobacco. A coat smelling but slightly of tobacco is sufficient to preserve a whole drawer. We trust our fair readers will not scold us for thus affording their husbands or lovers an additional excuse for perpetuating a bad habit. The vapor of turpentine and the smoke of tobacco are also effectual in driving away flies, spiders, ants, earwigs, bugs and fleas. The latter tormenters so abundant in Mexico.

Ivy on Buildings.

It is a mistaken idea that ivy renders a structure damp, and hastens its decay, on the contrary, nothing so effectually keeps the building dry, as may be seen by examining beneath the ivy after rain, when it will be found that the walls are dry, though everything around is deluged with wet. Its exuberant and web-like roots, issuing as they do from every portion of the branches, and running all over the surface on which it grows, bind everything together that comes within their reach with such a firm and intricate lacework, that not a single stone can be removed from its position without first tearing away its protecting safeguard." In proof of this we refer to ruins of ancient castles and buildings; "for while in those parts of the structure that have not the advantage of this protection all has gone to utter decay, where the ivy has thrown its preserving mantle everything is comparatively perfect and fresh, and oftentimes the very angles of the sculptured stone are found to be almost as sharp and entire as when first they came from the hand of the sculptor."

Nobles in a Quandrum.

Gen. Narvaez has summoned to his residence the Dukes De Oruna, de Medina Celi, and other leading nobles, to ask them for pecuniary assistance to carry on the government. He founded his demand on the address signed by them to the Queen of Spain, offering their "lives and property,"

The grandees, however, said they could not render any, and that, when the address was signed by them at the request of Narvaez they did it only with the idea of giving *moral force* to the government.

Death of Chateaubriand.

M. de Chateaubriand, the celebrated patriot, author and traveller, (who was in this country half a century since,) expired in Paris on the 5th of July. He has left ten MS. volumes of memoirs. Chateaubriand was a philosopher and a devout Christian.

A Large Steamboat.

Wm. H. Brown of this City, is building a mammoth Steamboat for the North River regular line --She is to be called the New World, will be 400 feet in length; her shaft, made of scraps of wrought iron, welded together by great labor, is already finished.—It weighs 32,360 lbs.

Relief of Asthma.

Obtain some common blotting paper and saturate it thoroughly in a solution of Saltpetre (nitre,) and dry it carefully before a slow fire, or in the rays of the sun. On retiring to bed at night, ignite a small piece and place it, burning, on a plate or piece of sheet zinc or iron in your bed room. In many cases this has enabled persons painfully afflicted to enjoy their rest.

Telegraphic Gambling.

The New Orleans Delta gives an account of a victim of a gambling house in that city, who, getting into a rage at his bad luck, knocked over the table, and discovered divers wires, by means of which intelligence was conveyed by a confederate to the player, in order to enable him to plunder his victim more effectually.

New Crops.

New cotton was received at New Orleans on the 13th inst. The sample consisted of two full blown bolls from a plantation at Bayou Sara. Flattering accounts are received from every quarter relative to the abundance of the crops. The potatoe rot has appeared in some places but if flour is cheap, the wet and dear potato may be laid aside for a year to recruit itself.

Spots on the Sun.

A very large cluster of spots has just appeared, says a London paper, on the eastern margin of the Sun, which are moving onward toward the center of its disk. This cluster is visible to the naked eye, and is one of the largest ever observed, its length being calculated at 140,000 miles, and its breadth at 20,000 miles.

The cotton mills are suspending work in every direction. Besides a number in New England, all in Delaware county, Pennsylvania, several at Manayunk, and one at Phœnixville have stopped. The Phœnix nail works, that were recently destroyed by fire, will not be rebuilt at present.

A gentleman has been engaged by the East India Company to proceed to China and procure for them live specimens and seeds of the Tea plant, for use in their Tea plantations in the Himmaleh Mountains.

Great numbers of sheep and cattle have lately been shipped from New South Wales to New Zealand, in which latter colony several flock-masters have already began to grow wool for exportation to England.

A tenth planet, belonging to the group which revolve between Mars and Jupiter, has just been discovered by Professor Kaiser, of Leyden. It is calculated that this planet performs its revolutions round the sun in three years and eight months.

The telegraph charges in England are but very little higher than those of the United States, and are said to be so much more correct, as to be worth the difference. We musn't be beat in the lightning line no how.

The Southern Telegraph wire having been relaid in the River despatches are received at the New York Office direct. The wire is covered with Gutta Percha, which works successfully in water as a non-conductor.

Several farmers in the vicinity of Boston have dug up their whole crop of potatoes, in the hope of checking the disease, which has appeared among them

Considerable quantities of the gum gathered from the cowrie, or New Zealand pine-tree, have been shipped to the United States by the settlers at Auckland and Nelson.

Specimens of crystalized salt, from the Great Salt Lake of California, have been recently deposited in the Congressional Library Room at Washington.

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Novel Method of Constructing Locomotive Engines.

A new idea has been started by Mr. Gaspard Cipri, surveyor of the Paris and Orleans Railway, and which he terms the "hydro-electric process, for feeding the combustion in the fire places of locomotives and steam engines" Having been aware of the loss of heat in the locomotive as at present constructed, he studied carefully the necessary means of preventing this, and found, as he says, by the aid of a very simple process, that all combustion can be fed by the vapor of water, in place of the air of the atmosphere. The following are the scientific facts on which the principle is based :

1. The difference between the vapors and the gases having been falsely given, for a long time, by the facts constantly exhibited in the physical sciences. Thus the bodies which are present in a state of gas, are the bodies in a state of vapor, and vice versa.

2. The vapor of water, or rather the gas of water, arising from two volumes of hydrogen, and one volume of oxygen, is a fluid which powerfully developes combustion, either by its chemical properties, or by the proportion of volume in which the mixtures of the two gases are present, which form the vapor of water.

3. The vapor of water, in coming into contact with electricity, undergoes almost a disjunction, or a repulsion, between the two gases which compose it. By an unknown cause, this repulsion between the elements of the vapor of water is almost necessary, in order that this same vapor might become a powerful supporter of combustion.

4. Ignition, or the flame which arises from the combustion of a body, is an electrical phenomenon.

To carry out these principtes, he proposes to construct his boiler grate in such a manner, that a current of steam can be passed underneath the grating, and the communication with the atmosphere be cut off after first lighting the fire; when the combustion will be fully supported, and much greater heat developed. He considers the following advantages will be obtained :

1. No tender is required. 2. The fire place is in the centre of the liquid mass, which is required to quickly heat. 3. The boiler, with all its heated surfaces, is placed between the fire place and the warm water, which serves to supply it. 4. The water, which supplies the wants of the boiler, by surrounding these heated surfaces, completely absorbs the caloric, which in the locomotives in actual use, is lost in the air. 5. No firemen are required.

He also proposes to use coal instead of coke, and all the gaseous products to mix with the steam, and be condensed in a reservoir which surrounds the boiler and supplies it; while the volatile oils contained in this fuel form a useful greasing substance to the moving parts. From the application of the smoke and gaseous products of combustion as a moving power, he assumes the following advantages :—

1. The employment of the tension of the smoke and the gaseous products of combustion, so that they mix with the steam, and assist to put into movement the engine by means of their tensile force.

2. Economical employment of all the heat, which, in the locomotives at present in use, once developed, passes off in complete loss in the air, by passing through the sides of the fire place and the tubes.

3. Suppression of chimney; whence it follows, that tunnels and bridges might be constructed of less height, and therefore at a diminished cost.

4. It becomes impossible for the tubes of the boiler to be stopped up. The inventor considers his new system produces a saving of expense of at least one-third over that at present in use.

We apprehend that Mr. Cipri's invention will end in vapor. In the first place he uses coal to raise up the steam, then he uses the steam to supply the place of coal, else he could not do away with the "tender." The condensing of the gaseous products to save the oil contained therein, for lucubrative purposes, is certainly a bright idea. Why not consume the gaseous product to propel the engine and save the expense of a reservoir and condensing apparatus? The idea of using steam to feed combustion is just as sensible as using fire to extinguish fire. The London Mining Journal says, that if Mr. Cipri's invention is carried into effect, "it will produce a revolution in the principle of the locomotive."—We have no doubt of this. It will produce *one* revolution in a locomotive and then a dead halt. Of the many plans proposed for locomotive propulsion, we know of none to supersede the plans at present applied, unless hot air be made to usurp the place of steam; the water cistern would then be laid aside and this much dead weight saved. We had thought that the *tension of smoke* as a propelling power, was now obsolete. A few years ago, a gentleman in this city spent some thousands of dollars in vain upon such a project. He secured a patent which cost him $500 as a fee, he being an English Engineer, and it is not worth a single straw.

For the Scientific American.

Electricity and Color.

If white paper is moistened with a solution of the cyanide of potassium and a very minute portion of the salts of tin in a liquid state, and then submitted to the action of a galvanic battery, the paper will become a beautiful blue. Before submitting the paper to the action of the battery but prepared with the cyanide, it is a light green, but the galvanic current instantly changes this color to the blue. This is the principle of Mr. Bain's Printing Telegraph, and for which he has applied for letters patent at our Patent Office, which application is now the subject of a controversy with a Caveat of Professor Morse's and regarding which there have been some strange rumors in Washington about the secrecy of "the confidential archives." In 1832 a Mr. Davy, in London, proposed a printing telegraph upon the principle of the current changing the colors of chemically prepared fabrics. This is one evidence of the agency of electricity in the art of printing.

There is a certain style of calico printing founded upon a like principle,—it is named "steam and spirit colors." It is nothing more than to print certain substances upon cloth, in which a portion of the salts of tin forms a leading ingredient, and afterwards roll the cloth upon cylinders, or *steam cans*, as they are called, and submit the goods to the action of steam heat for some hours. When the goods are printed the colors are scarcely discernable, but when they come out of the steam cans they are bright, full and beautiful. Every color, and every shade of color, is produced in this manner. We believe that electricity, (which we know is greatly developed in steam,) is the great agent in the *raising* of spirit colors. In fact, the whole science of electrotyping, (the deposition of motals from their solutions by galvanism,) has a strong family resemblance to the electro telegraph printing; the cyanides are used most advantageously in both processes. In the steam colors of calico printing— the same agent is undoubtedly working mysteriously beautiful in the steam can and from a dull almost imperceptible blotch on the pieces when they go in the steam box, we behold them coming out clear and brilliant. The same agent undoubtedly presides over the manipulations of the dyer, but there are very few operatives who are acquainted with abstract science, although the majority of them well know that according to the degrees of heat to which a catcheeu brown may be submitted, a difference of twenty or thirty shades is perceptible, and although they all well know that if chrome yellows are submitted to the action of hot lime water, a deep orange is produced, yet there are few who are aware of the oxidising process in dyeing similar to the preparation of silver solutions for electro gilding.

The process of steam colors in printing, is applied to every kind of fabric, but perhaps to no branch of manufacture has it been, or is it so advantageously and beautifully applied, as to the preparation of warps for carpets.—The invention of Whytock and the production of the finest velvet carpets of every pattern, and by the use of only one kind of weft, instead of one for every color as in the old process, is a very simple affair. The pattern of the carpet is printed like calicoes, full on the warp, rolled upon a roller and then submitted to the action of steaming. After this the warp is put in the loom and the weaver just weaves his cloth with two treadles like plain weaving.

R. Bartholomew.

For the Scientific American.

Power of Machinery

A horse power is usually taken as being equal to the raising of 33,000 pounds one foot a minute, or, if the measure of speed be taken in seconds, it will give 550 pounds raised one foot a second, for a horse power. Some of the English engines are now calculated by a divisor of 66,000, and thus mistaken views have been conveyed and imbibed regarding their power.

The power of mill-gear or machinery is estimated as equal to that of raising any given number of pounds, one foot per minute or per second.

To find the stress or strain upon a belt at any time, divide the given power required to operate any given complement of mill-gear and machinery, by the number of feet per second, or per minute, (as you choose to reckon it) that the belt runs, and the quotient will be the number of pounds per second or per minute of stress upon the belt. This amount divided by one or the other of the foregoing numbers (as the case may be,) will give the horse power of the belt.

Example: Suppose the power found by a dynanometer to be equal to 66,000 pounds raised one foot per minute, and the belt to run 3000 feet a minute, what is the stress upon the belt?

The 66,000 divided by 3000 will give 22 pounds stress only, or if the belt runs 300 feet a minute, the stress would be 220 pounds.

This mode of calculation will answer well enough for common purposes, and it will be observed that there is economy in running belts at a high velocity. There may be a greater loss in tear and wear, and the maximum velocity for profit is certainly desirable information.

To insure the most economical use, and longest durability of a belt, it should never be loaded with more than one half the extreme power that it would carry.

A belt of 2½ inches wide, running at a velocity of 1200 feet a minute, will be well adapted to carry a horse power; and a belt of 5 inches wide of similar material and speed may be rated at three horse powers. For as the width of belt is increased, its speed is increased more than in a given ratio.

The reason that a belt of double the width of another, will sustain more than double the stress, may be that a belt first fails at its edges, and a belt of 5 inches wide has no more edges exposed to wear, strain, and consequent failure, than one of half the width.

For the Scientific American.

Electric Light.

I have long since thought that a useful light might be made by the multiplication of successive sparks from an electric machine or battery. I have not seen a galvanic battery which would afford a spark sufficiently brilliant for my purpose, and the expense attending the use of such a battery would be objectionable; unless Mr. Staites or some late inventor has overcome that difficulty, I cannot apply it to my purpose.

I find the desideratum described in your 2d vol. No. 40, page 316, constructed by Mr. Monson, Paris, yielding a spark nine inches long and *not affected by Hygrometric changes*. I propose to put a machine of that description in motion by clock-work, by self-created electro magnetic power, or otherwise, and pass the sparks in quick succession (a brake being used) over one side, and then the other of a glass plate or plates (ten feet square if you please,) both sides of which are dotted over with metallic points—near enough together to attract the electric fluid from one to another in succession—causing a spark at each interval between the matallic dots, by which means an infinite number of sparks can be produced at every instant of time. Non conducting projections from the surface of the plate, and between the lines of points, the use of minute glass tubes, exhausted receivers, &c. will readily occur to your mind. F. S.

Reprove thy friend privately; commend him publicly.

Chinese Delicacies.

Oils are extracted from the olive, sesame, cotton seed, several kinds of cabbage, pork fat, and fish, which together with the castor oil, are all used for culinary purposes. The use of the latter for any purpose other than a medicine, is, I should suppose, peculiar to the Chinese; it is expressed through a cullender, and, when fresh, has not the aroma that it afterwards acquires. Ducks' eggs are in great requisition, and in order to meet the demand for them, great numbers are kept on all the navigable rivers and canals, in floating poultry houses. They are under very remarkable discipline, they go out to feed, and return home with remarkable expedition, and at a word from their masters will do almost anything that can be required of them; he stands meanwhile at the entrance, and flogs the straggler and rewards the foremost. They are never allowed to hatch their own eggs, almost all towns having ovens for that purpose. The eggs of all birds are used, but those of the ducks are salted in the shells, as is the flesh also, for sea stores—Considerable quantities of fish are salted and dried. The collared eel is very fine, but none are thrown away, even the blubber is eaten, as are water-snakes, frogs, toads, shell fish of every species, tortoises, snails, gelatinous worms, and lizards. The various grains are used in making unleavened bread, (not unlike a muffin in appearance,) cooked on the side of a portable oven, and generally by steam, together with pastry of divers sorts, among which are some very similar to Europeans, as wafer, sponge cakes, &c., which would be palatable enough were it not for the introduction of a lump of pork fat, discoverable only by the uninitiated, at a most disagreeable period. The introduction of pork fat into these articles of Chinese gastronomy is universal and disgusting. Imported are ginseng, a kind of liquorice, which was formerly a royal monopoly, and could only be grown on the emperor's property in the north, but has latterly been introduced from Canada, and some parts of the United States; and birds' nests of the sea swallow, a transparent substance, in appearance somewhat resembling a gum, reckoned a great delicacy, and sold at very high prices. I have seen four or five, when very clear, weighing only three or four ounces each, sell for thirty dollars. They are brought from the islands of the Eastern Archipelago, as likewise are beches de-mer, or sea-slugs, brown-looking snails, about six or seven inches long.—They are an expensive luxury, as are the exotic dainties of roes, sounds, tripe, fins and tails of sharks. "In fact, a Chinaman will eat *everything* but his *own* father" —*Forbe's Five Years in China.*

Influence of Nature.

All men need sometimes to be alone, and to be quiet. It is good for one to open his eyes and heart to the influences of the natural world. In the solitude of nature, man's voice is silent only that divine voices may be heard. There, if it is sometimes difficult to do good actions, it is also difficult not to think good thoughts. What we think of is demtermined very much by what obtrudes itself upon the senses. On the wharf, or the exchange, with the sights and sounds of business on every side, one's thoughts turn naturally into the channels in which flow the thoughts all around him. In the country, what one hears and sees suggests entirely different meditations. The universal harmony stills its fretted passions. All the objects which the eye rests on, speaks of infinite wisdom, and providential care. The atmosphere which he breathes is as healthy for the soul, as it is for the body. He goes out at "eventide, to meditate;" and heaven and earth transfigured as their true glories are revealed, he returns feeling that he has been standing in the temple of the Most High.

A Voluntary Tax.

Scotland only pays half a million a year to the income-tax fund, while England pays four millions; yet her free church can raise annually £350,000 for the advancement of Christianity, while wealthy England, in proportion to her abilities as compared with those of Scotland, does not raise one tithe of that sum.

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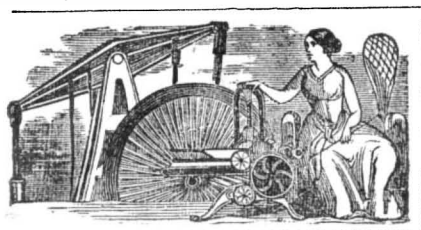


New Inventions.

Locomotive for Inclined Planes.

We have seen a sketch of an improved Locomotive for ascending inclined planes, the invention of Mr. S. A. Beardsley, of New York State, which promises to be of much utility. The novelty consists in the application to the rails of levers, worked by the cranks of the driving wheels. We shall not now enter into a further account of the invention as we expect soon to publish an engraving of the same, with a full description.

New Grates for Stoves.

Mr. Rosewell Hilson, of Halfmoon, N. Y., has invented a singular grate for stoves which he has recently patented. It consists in the construction and arrangement of an Archimidean screw, gradually contracting it and placing it so as to receive air at each revolution for the purpose of rendering the column elastic.

Another Grate Furnace.

The above leads us to notice the spherical Grate and the Hot Air Furnace, recently patented by Mr. Robert Wilson, of Albany, N. Y. which has been so highly extolled. As this is the time for our Stove Manufacturers to be getting up their patterns, we believe that this hot-air furnace would be a good project to enter into. There are no less than six new claims embraced in his patent, and it acts as a ventilator as well as a heater, a quality possessed by it singularly, and therefore a grand object to all the lovers of health and comfort.

New Diving Bell.

Experiments were made at Boston, with a new diving bell, the invention of a Mr. Richards, a Boston mechanic. It fully answered the anticipations of the inventor. It is capable of descending to the depth of one hundred feet or more. At a depth of twelve feet newspapers could be easily read within the bell. The inventor is about to further test its capabilities in an examination of the wreck of the boat Alabama, on Cape Cod.

Lung Protector.

An invention has lately appeared in Louisville, Kentucky, named as above, and described as follows: It consists of a small air cylinder, with a valve at each end, one working inward, when the air is inhaled, and the other outward, when the air is exhaled, the inhaling valve being surrounded by a woolen net work, through which the air is filtered — In case of injurious gasses, a flexible tube runs from the inhaling valve along the leg to near the floor, by which the worker inhales only the lower part of the column of air and avoids the smoke and gases.

It is for the purpose of protecting the health of operatives who may be engaged in labor which exposes them to the gas of charcoal.

There is no use of the inhaling valve. A silk handkerchief tied loosely over the mouth and nostrils and kept a little moist will answer the purpose without a valve.

In connection with noticing this contrivance we would call the attention of those persons who live in situations prolific with billious diseases, and state that diseases may be often prevented if care was taken to cover the mouth and nose with a thin silk handkerchief whenever they go abroad in the mornings before the dew has taken flight, or in the evening when the sun has set and the dew is falling.

Lighting Street Lamps by Electricity.

It is proposed to light up the city of London all at one instant. This is to be done by having one stop cock for the main pipe, to let on and shut off the gas, and to have a wire connected with every lamp to send an electric current to ignite the gas. It appears to us, that before this project can be carried out some charcoal dust or its equivalent is necessary at all the ignition points.

Morse and Pratt's Railway Brake.

Morse and Pratt's Railway Brake, a cut of which appeared in No. 40 Scientific American, is also designed to be operated by the conductor of a Railway train, if need be, from the end of the cars. This was omitted in the engraving, but the plan will be easily understood by referring to the cut. The shaft that operates the lever can be connected with a chain over the top of the cars and by pulling on that, the shaft descends and the lever operates the brake wheels, arresting the momentum of the cars.

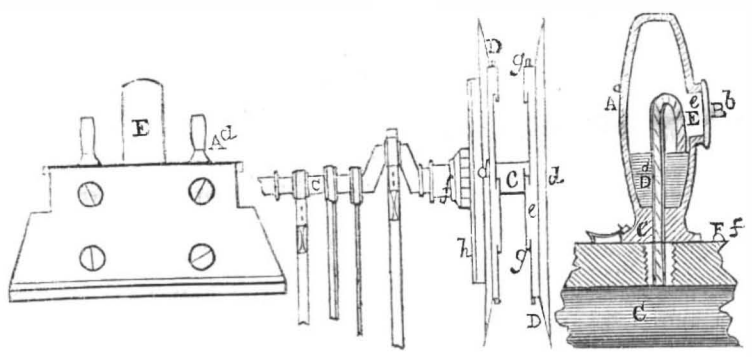
Unbranning Machine.

Mr. L. A. Spalding, an extensive miller at Lockport, N. Y., has erected one of Mr. S. Bentz's Unbranning Machines, and it has operated with great satisfaction. There is a gain of twelve and a half per cent of fine flour.—An apparatus for a mill of eight run of stones will not cost more than 500 dollars, exclusive of the patent right.

IMPROVEMENTS IN DIMINISHING DRAUGHT AND FRICTION ON CARRIAGES.

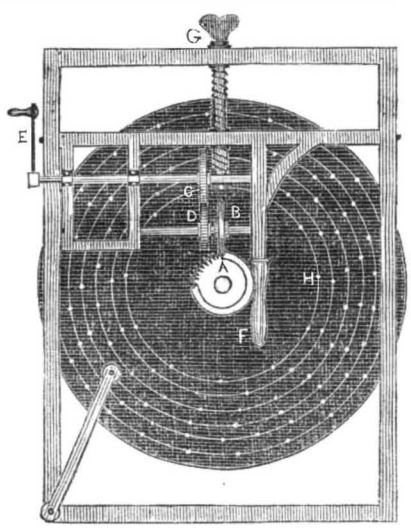
(Concluded from first Page.)

FIG. 2. FIG. 3. FIG. 4.



From the preceding description, the manner in which progression is given to the carriage will be understood. Previous to starting, some of the pedestals of each chain of friction wheels are resting on the ground, while all the rest are wound round the tumblers; and the entire weight of the carriage is sustained by such of the friction wheels as are in direct contact with the rails. In the case of the forepart, there should not be more than one wheel in contact with the rails at a time, in order that the guiding part of the vehicle may turn with ease; and with this view the rails are made short, and rounded off at the end. When rotary motion is given to the main axles, C, by animal or steam power, and thereby to the tumblers D, the carriage slides forwards by means of the rails attached to it, on the friction wheels beneath, while simultaneously therewith a revolving motion is imparted to each of the endless chain of wheels which brings one wheel after another in continual succession under the rails, producing thus, all the effect of one continuous rail. The oiling of the axles and bearings is effected by an oil box of peculiar construction, one such box being attached to the brass bearing of each axle, a sectional elevation of which is shown at fig. 4, of the engraving. A *a*, is the box which is filled to about the height shewn; B *b*, is a lid which is screwed on to a ring which projects from the side of the box; C is a neck by which the box is screwed into the brass bearings O; D *d*, a tube which is passed down through the neck C, to the axle C, and carried upwards a little way above the level of the oil in the box; E *e*, are threads of cotton, which being inserted at one end into the tube, D *d*, and dipping at the other into the oil, supply by capillary attraction, a constant flow of oil to the axle; F *f*, is a circular rack raised on the tops of the brass bearings, and secured to the neck of the oil cup, which takes into the rack F *f*, and holds the box fast when screwed into its place. The advantage of this oil box is, that no supply of oil can be given to the axle except when the box is nearly vertical, and that there can be no escape of the oil except in the direction of the axle.

Engine for Cutting the teeth of Wheels.



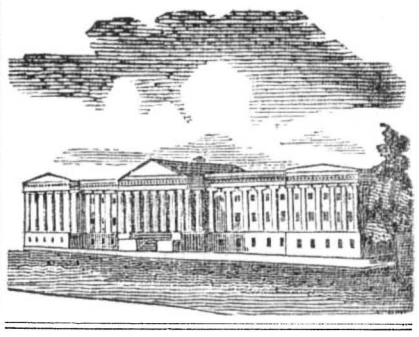
The above engraving represents a plan of a hand engine for cutting the teeth of small wheels. A, shows the arbor on which the wheel to be cut is fixed. B, is the cutter. C, a toothed wheel worked by the handle E, and taking into the pinion D, which being hung on the same axis as the cutter B, imparts to it a velocity proportionate to the number of teeth in the wheel C, and the pinion D. F, is a lever handle by means of which the swinging frame may be gradually depressed as the cutter B is brought into operation, or raised when it has performed its work. G, is the horizontal adjusting screw. H, the division plate. I, the index or pointer. The divisions of the circle, represented above by dots on the plate, are commonly 360, 300, 150, 90, 60, &c. The only true and accurate method of circular division, is by the tangent and endless screw.—They have been successfully applied to the wheel cutting engine.

Artificial Marble.

There is an establishment in London where sculptors may work in chalk, and it be afterwards convertible into the hardest marble while every mark of the chisel is preserved. The inventor is Mr. Wm. Hutchinson, who has secured a patent and he can make Plaster of Paris, Bath fire stones, and other sorts of stone, chalk, wood, pasteboard, and, in fact, every other material is rendered as hard as metal, receiving the most brilliant polish, and made absolutely imperishable from atmospheric action.

The purposes to which this patent can be applied, are innumerable. The first idea of the patentee was the induration of the softer and more common and almost useless stones for the purpose of paving; but so complete was his success that he soon took a loftier view, and has rendered the operation not only applicable to all common purposes for which stone and slates are used in building—such as paving, both internal and external, window sills, cisterns' fittings of dairies, &c., but now applies the operation to all the higher works of art. Plaster of Paris casts, of the most elaborate designs, in bust, relievos, architectural ornaments, fonts and ornamental flooring for churches, trellis work for balconies, ornamental inkstands, &c., are rendered imperishable by the operation of the elements, and as hard and tough as metal.

A slab of soft fine sand stone, so soft that it might be rubbed into powder by the hand—was rendered hard as granite, and rung like a bell; numerous Plaster of Paris ornaments and busts, metamorphosed into bronze, granite, and party-colored marbles—drain, water and gas pipes, made from Bath stone, chalk or paper, hard as granite, and polished internally like marble; in fact, the results of the operations are said to be most extraordinary, and one of the greatest discoveries of the age.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 18, 1848.

To Gilbert Jessup, of Newark, N. J., for improvement in Threshing Machines. Patented July 18, 1848.

To Edward Lynch, of Brooklyn, N. Y. for improvement in Evaporators and Condensers. Patented July 18, 1848.

To James Root, of Cincinnati, Ohio, for improvement in Cooking Stoves. Patented July 18, 1848.

To Zenas Marshal Crane, of Dalton, Mass., for improvement in Machinery for cutting Paper. Patented July 18, 1848

To George L. Wright, of Springfield, Mass. for improvement in Machinery for cutting Paper. Patented July 18, 1848.

To Mark Wilder, of Peterborough, N. H., for improvement in Machinery for cutting Paper. Patented July 18, 1848.

To Thomas S. Sprakeman, of Philadelphia, Penn., for improvement in the combination of Springs with the back chain of Carts, &c.—Patented July 18, 1848.

To Erastus T. Sprout, of Springville, Penn. for improvement in combined carriage Springs. Patented July 18, 1848.

To Nathaniel Waterman, of Boston, Mass., for improvement in portable Cooking Stoves. Patented July 18, 1848.

DESIGN.

To Jeremiah D. Green, of Troy, N. Y., for Design for Stoves. Patented July 18, 1848.

RE-ISSUE.

To Laban, Sumner R. and Cushing B. Morse, of Athol, Mass., assignees of Laban Morse and Whitman T. Lewis, of Athol, Mass., for improvement in Air Distributors for chambers of combustion. Patented 16th May, 1846. Reissued July 18, 1848.

INVENTOR'S CLAIMS.

Atmospheric Churns.

To Nathan Chapin, of Cortlandt Village, New York, for improvement in Atmospheric Churns. Patented 9th May, 1848. Claim.—What I claim as my invention and desire to secure by Letters Patent, is forming the paddles of the revolving wheels with buckets, of the peculiar shape above described, for the purpose of raising the cream nearly to the top of the churn, and discharging it through the air therein admitted through the aperture in the lid, as well as breaking up the cream by the revolving of the buckets through the cream, by which the butter is produced in a short period of time; said buckets conveying the air to near the bottom of the churn and discharging it through and amongst the cream by which the oxygen of the air is brought into close contact with the fatty substances of the cream, and by which they are caused to incorporate readily into a solid mass in the form of butter, as herein fully set forth.

Horse Rakes.

To M. W. Lyman, of Philadelphia, Penn., for improvement in Horse Rakes. Patented 16th May, 1848. Claim.—What we claim as our invention, and desire to secure by Letters Patent, is the method, substantially as herein described, of raking and elevating, and delivering it into a wagon or other receptacle by means of the rake frames, so jointed or otherwise connected with the wagon as to admit of being elevated to raise and discharge the hay into the box of the wagon or any other receptacle, as described.

The Geographical Society of London has awarded to Capt. Wilkes, of the U. S. Navy, a gold medal in testimony of his valuable discoveries and contributions to Science. Mr. Bancroft received the medal to forward to the distinguished Captain.

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NEW YORK, JULY 29, 1848.

Value of the Mechanical Classes.

It is an old saying, that "republics are ungrateful." This is often too true, but no less true of republics than other governments — Despotic, monarchical and oligarchial governments have been far deeper stained with acts of ingratitude, than republics. It is not by monuments reared in splendor to statesmen and warriors that we can estimate the depth of a nation's gratitude or a nation's patriotism.— No, no, it is not by these, but rather in the absence of neglect, and in justice done to the deserving obscure, than in the heaped up glories showered down upon the memory of great and distinguished men. This is particularly true of the mechanical classes of every country, and especially those of Great Britain.— The most enthusiastic admirer of England may talk as he pleases of the glories and victories of "old England," and the names of Nelson and Wellington may be shouted with the most bursting enthusiasm, yet where would have been their victories and where their mighty fleets and well provided armies, if Hardgreave had not invented the spinning jenny? It was the mechanical genius, mechanical skill and industry of the operatives of Great Britain that made her wealth, and enabled her to equip the armies of Austria, Russia and Prussia, to meet and vanquish the "Great Captain." Only for the wealth which flowed into England's coffers by the sale of her manufactures, she would be a poor country indeed, for she has not the natural capacities of agricultural greatness, but her mechanics have made her a great country, and the men to whom she is most indebted, (with but very few exceptions,) sprung not from her nobles and aristocratic classes, but from her humble industrious poor. Hardgreave was a poor operative, Arkwright was a barber, and Dr. Cartwright, the inventor of the power loom, was by no means of high descent James Watt, the immortal improver of the steam engine, was but a poor mechanic, and Telford, the great architect, and Rennie, the great civil engineer, were mechanics, and George Stevenson, the successful locomotive improver and engineer, was but a working operative. To her living mechanics England is still indebted as she is to those that are departed. Stevenson is still strong and energetic, and so is Bain, the greatest of England's living electrical engineers, and he too is a mechanic.— Now, what we want to exhibit, in calling attention to these things, is, *the neglect*, the oversight displayed by governments in their readiness to honor other classes who are not so deserving. We know that a Herschell and a Rennie have been knighted, but where in the whole history of England can we find a man made a Peer of the realm, unless he has thundered in the Paliament house, or thundered on the battle field. Blood and eloquence have been passports to the dignity of the peerage, while the mechanic might invent (and has invented) and raise England from the "dirt to the deity" in manufacturing greatness, still he is not considered equal to the rich and idle droneish class of exclusive titleage. The offices, too, of emolument and distinction, are exclusively the rich men's patrimony, and this is the crushing weight that is driving so many excellent mechanics to this country, and which will be the means in the course of twenty years more of destroying the cotton manufacture of Britain, and making the mules and the looms of Manchester and Glasgow to whirl and whisk on the banks of many of the now lonely streams of Georgia and Alabama, instead of the banks of the Clyde and the Irwell.

In calling attention to the ingratitude of another government, we do not say that this is a govermental question, but it is evidence of the indwelling of a wrong, unjust and haughty feeling in those classes who by inheritance are *managers* of government. This is just as true of all other governments, even our own, as it is of Britain, although that country presents the greatest contrast.

If we look to the many offices and the persons who fill them at our own fireside (if we may use the expression) we will find that we can point the finger to that *management* which necessarily belongs to all political organizations, and say as said the prophet to David, "thou art the man." Let these reflections be weighed well by all those who wish well for their country, and let there be more encouragement to the worthy of our producing classes irrespective of any thing but real worth. There is no doubt but our mechanical classes are more comfortable than those under any other government, and they meet with more encouragement, still no one can doubt but there is yet room for improvement. Let us then prove to the world as a nation, that towards all deserving classes of our citizens, the Great American Republic is the most grateful of nations.

Deviation of Bodies Falling from the Perpendicular.

Many experiments have been tried to find out the amount of deviation from the perpendicular of bodies falling from a certain distance, and the whole of the experiments that have yet been made prove conclusively that there is a departure from the perpendicular line, and the greater the distance or space fallen through, the greater the deviation. Professor, Oersted, has lately made some very interesting experiments in one of the mines in Cornwall nearly a quarter of a mile in depth, which go far to confirm the experiments of Rutch, made at Freeberg, in a pit 450 feet deep. It is a singular fact, that the departure of falling bodies from the perpendicular line is towards the South, and in fair experiments both with bullets and plummets, in falling through a space of 1,359 feet, there was a deviation to the South ten inches from the plumbline. At one time the calculations of mathematicians was in favor of a deviation of falling bodies towards the east. This opinion was formed from the knowledge of the rotation of the earth from west to east each point in or upon her describing an arc proportional to its distance from the axis, but experiments show that the deflection is towards the south, and therefore the curvature to the south from the plumb line in falling bodies, is in exact proportion to the distance from the centre of gravity, from which the body falls. The following is Prof. Oersteds theory explanative of these experiments, and it appears both plausible and sound.

If falling bodies be acted upon only by the gravitating and tangential forces, the plane in which any falling body moves will be indicated by two lines, one line joining the point from which the body falls and the centre of gravity, and the other a line at right angles to this line forming a tangent to that part of the circle of latitude, which is situated in the falling body at the instant it begins to move. Taking the earth as a perfect sphere and the centre of gravity coinciding with the geometrical centre, this plane will cut the earth in a great circle, and is, of course stationary, that is, it does not rotate with the earth. Now, while a falling body is moving forward and downward in this plane, the point from which it fell is moving round in the circle of latitude; and the line joining that point and the centre of gravity lies no longer in this plane, but has described part of the surface of a cone round the axis of the earth; consequently the falling body must be some distance outside this cone, and to the south of the vertical line passing through the point from which it fell.

The Crops.

The caterpillar has appeared upon the cotton plant in Texas. In South Carolina, corn and cotton promise well; and the oat crop now harvested has been excellent. Hay is nearly destroyed in the eastern and middle states, by the late rains, which have also interfered with the wheat harvest. The peach crop of Delaware never looked better. The sugar crop of Louisiana has been seriously injured by excessive rain. In Canada the crops never were better.

Extraction of Metals from their Ores by Electricity.

The deposition of metals from their solutions by an electric current, was first applied by Professor Jacobi, of St. Petersburg, to the working of gold and silver in the Ural mountains. The same principle was applied by others to the deposition of all the metals, but not on a large scale with economy, because the metals must first be reduced by some powerful solvent before they can be deposited by the current. The expense for dissolving and depositing copper by this process was found to be very great, and beside when copper is dissolved it is more cheaply separated from the dross by precipitation than by deposition. In 1842 M. Becquerel applied another mode of extracting metals from their ores by taking advantage of the calorific effects of the electric current. Gold and silver ores were moistened and made pasty, and a helix of platinum wire containing within it a number of small crucibles of clay and charcoal were bedded in the mixture and the extremes of the coil being attached to the terminals of a galvanic battery, the current of electricity thereby generated raised the platinum wire to a white heat which fused the ore and disengaged the metal, the latter dropping into the crucibles placed for its reception. This process, however, is not so profitable as ingenious, for it is just a substitution of electricity for coal, something like burning water to create heat and light from the combustion of heat and light in another form.

In 1844, a Mr. A. Wall obtained a patent for applying electricity to iron while in a state of fusion to decarbonize the metal and make wrought iron, but this did not refer to the extracting of metal from its ore. James Napier, a practical mechanic, was the first to discover and direct attention to a true and economical mode of separating copper from its ore by electricity. His process is to bring the ore into a fluid condition by heat and then throw in some lime or soda as a flux. A black lead crucible is then prepared with an internal coating of fire clay wash reaching nearly to the bottom, which must be left untouched. The ore mixed with a necessary amount of flux is placed in the crucible, and the whole placed in an ordinary furnace. A galvanic battery of any kind having an intensity of five pair of plates is then placed in readiness to act upon the fluid mass. A rod of iron is then attached to the zinc terminal and a similar one to the copper one, having a disc of iron or coke on its disengaged extremity just so large as to enter the crucible without touching its sides. To complete the circuit the disc is lowered into contact with the surface of the fluid and the end of the rod proceeding from the zinc terminal is brought into contact with the outside of the crucible. The heat being kept up the current is kept in action for about two hours, the length of time varying with the quantity of ore and the power of the battery. In the course of the operation, the metal is precipitated to the bottom and separated from the slag. Were no galvanic current passed through the ore and its flux, the same mixture might remain unaffected with the heat. For manufacturing purposes, it is only necessary to have the bottom of the furnace paved with blacklead tiles or some other non-conducting fireproof substance. The materials to be operated on are placed in the furnace and fused and the bottom connected with the zinc end of the battery and the surface with the copper by a plate of iron or coke in contact with it and connected with an iron rod proceeding from the battery. The ores subjected to this process should first be roasted to drive off as much sulphur from them as possible. This is a process for those who wish *pure* iron to try as an experiment.— There is no metal so sensitive as iron and regarding which, so many opinions exist.— This electro-smelting process is applicable to all metals that are capable of being held in fusion by fluxes, and only one-sixteenth of zinc is used up in the battery for one of copper gained, and the metal is very pure.

A remarkable rose tree, called the "Maiden Blush," is growing in St. Louis. Through the centre of each rose upon the tree, a stalk or stem has pushed forward, producing other roses.

Copying and Writing Telegraph.

Our readers may remember, that in a notice which we copied from one of our London Exchanges, in No. 36 Scientific American, giving some account of a new copying telegraph, we intimated (because we saw clearly through it,) that it was a modification of Bain's printing Telegraph, a full description of which is to be found in No 35. The invention of the copying telegraph was credited by the London Spectator to a Mr. Bakewell, but the following letter of Mr. Bain, will shew that our views were correct and founded upon an understanding of its many applications.

Electric Telegraph Office, London.

Having just returned from America, my attention has been called to an article copied from the Spectator into your widely circulated Journal, containing a notice of the "Copying Telegraph," which is erroneously described as invented by a Mr. Bakewell. Permit me to inform your readers that the invention is not at this time new,—neither is Mr. Bakewell the inventor. The "Copying Telegraph" was invented by me in 1842, and patented in the year following. Patents were also secured for the invention in Scotland, France and Belgium. The English patent is now the property of the Electric Telegraph Company, who purchased it from me. The foreign patents are still in my own hands.

The "Copying Telegraph" is capable of transmitting the *fac simile* of any communication in writing or printing, or of any other figure, including a profile of the "human face divine," so that the physiognomy of a runaway could be sent to all the outports of the kingdom in two or three minutes. This Telegraph has not yet been put in practice, from the circumstance of its requiring greater accuracy in the machinery, and more perfect insulation of the wire, than has yet been attainable for great distances; but these are not insurmountable, and daily progress is making towards the necessary perfection in this department of the yet infant secience of Electric Communication. I am, &c.

June 5. A. BAIN.

We believe that there is a dispute relative to the granting of a patent to Mr. Bain for the United States, by an interfering Caveat of Professor Morse. It may throw light upon the subject and be information to our Patent Office, to state that Professor Wheatstone, of London, also disputed Bain's right to a patent in England, but the Professor was completely overborne by the weight of evidence on the part of Mr. Bain, and a pamphlet was published upon the subject by a Mr. James Findlay. This was in 1843.

Mr. John L. Stephens, the distinguished traveller and author, has discovered a favorable route from Chagres to Panama, forty miles in length.

Unprecedented Demand for Old Papers.

At the commencement of the present volume of the Scientific American we had nearly one thousand complete setts of the preceding volume on hand. Since that time we have had 500 copies of those setts bound, and the balance have been ordered by mail and sent in sheets. We are now obliged to inform our patrons that we are unable any longer to furnish *complete* setts in sheets, and that we have but fifty more copies left, which are bound. The price of the remaining fifty copies which are left will be hereafter $3 per copy (neatly bound,) or we can furnish a few more copies in sheets, minus Nos. 1, 10, 16, 17 and 46, at $2 per sett. All the numbers of the third volume can be had yet, at the subscription price.

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Arts, Manufactures and Machinery.

Copying by various kinds of Printing.

The Art of Printing, in all its numerous departments, is essentially an Art of Copying. Under its two great divisions, Printing from hollow lines, as in copper-plate, and printing from surface, are comprised numerous arts.

In copper-plate printing, the copies are made by transferring by pressure a thick ink from the hollows and lines cut in the copper to sheets of paper. An artist will sometimes exhaust the labor of one or two years upon engraving a plate, which will not, in some cases, furnish above five hundred copies in a state of perfection.

Engraving on steel is in most respects similar to engraving on copper, except that the number of copies is far less limited. A Bank-note engraved as a copper-plate will not give above three thousand impressions without a sensible deterioration. Two impressions from a Bank-note engraved on steel were examined by one of the best artists of the present day, and he could not say, with any confidence which was the earliest impression One of these was a proof from among the first thousand, the other was taken after between seventy and eighty thousand had been printed.

Music is printed from Pewter Plates, on which the characters have been impressed by steel punches. The metal being much softer than copper is liable to scratches, which detain a small portion of the ink. This is the reason of the dirty appearance of printed music. A new process has recently been invented by Mr. Coper, by which this inconvenience will be avoided. The improved method, which gives sharpness to the characters, is still an art of copying; but it is effected by surface printing.

In calico printing from cylinders, many of the patterns are Copies by printing from copper cylinders about four or five inches in diameter, on which has been previously engraved the desired pattern. One portion of the cylinder is exposed to the ink whilst an elastic scraper of stuffed leather, by being pressed forcibly against another part, it removes all superfluous ink from the surface previous to its reaching the cloth. A piece of calico of twenty-eight yards in length rolls through this press in four or five minutes.

In printing from perforated sheets of metal very thin brass is sometimes perforated in the form of letters, usually a name; this is placed on any substance which it is required to mark, and a brush dipped in some paint is passed over the brass. Those parts which are cut admit the paint, and thus a copy of the name appears on the substance below.

This method, which affords rather a coarse copy, is sometimes used for paper with which rooms are covered, and more especially for the borders. If a portion is required to match an old pattern, this is, perhaps, the most economical way of producing it

The beautiful red cotton handkerchiefs dyed at Glasgow have their pattern given to them by a process similar to this, except, that instead of printing from a pattern the reverse operation, that of discharging a part of the color from a cloth already dyed, is performed. A number of handkerchiefs are pressed with immense force between two plates of metal, which are similarly perforated with round or lozenge-shaped holes, according to the intended pattern. The upper plate of metal is surrounded by a rim, and a fluid which has the property of discharging the red dye is poured upon that plate. This liquid passes through the holes in the metal, and also through the calico; but owing to the great pressure opposite all the parts of the plates not cut away, it does not spread itself beyond the pattern. After this the handkerchiefs are washed, and the pattern of each is a copy of the perforated metal plate used in the process

The other department, or that of printing from surface, is of more frequent application in the arts.

In printing from wooden blocks, a block is the substanae out of which the pattern is formed; the design being sketched upon it, the workman cuts away with sharp tools every part except the lines to be represented in the impression. This is exactly the reverse of the process of engraving on copper, in which every line to be represented is cut away. The ink instead of filling the cavities cut in the wood is spread upon the surface which remains, and is thence transferred to the paper.

The printing from moveable type is an art important in its influence of all the arts of Copying. It possesses a singular peculiarity which arises from the immense subdivision of the parts which form the pattern. After that pattern has furnished thousands of copies the same individual elements may be arranged again and again in other forms and thus furnish multitudes of originals, from each of which thousands of their copied impressions may flow.

Printing from sterreotype is a mode of producing copies very similar to the preeeding; but as the original pattern is incapable of change, it is applied only to cases where an extraordinary number of copies are demanded or where the work consists of figures, and it is of great importance to ensure accuracy. Individual alterations may be made in it, and thus mathematical tables may, by the gradual extirpation of error, at last become perfect. This mode of producing copies possesses, in common with that by moveable types, the advantage of being capable of being used in conjunction with wood-cuts, a union frequently of importance, and which is not so readily accomplished with engravings on copper.

Calico printing from blocks is a mode of Copying by surface printing from the ends of small pieces of copper wire, of various forms fixed into a block of wood. They are all of one uniform height, about the eighth part of an inch above the surface of the wood, and are arranged by the maker into any required pattern. If the block be placed upon a piece of fine woollen cloth, on which ink of any color has been uniformly spread, the projecting copper wires receive a portion which they give up when applied to the calico to be printed. By the former method of printing on calico, only one color could be used; but by this plan, after the flower of a rose, for example, has been printed with one set of blocks, the leaves may be printed of another coler, by a different set.

To print oil-cloth after the canvass, which forms the basis of oil-cloth, has been covered with paint of one uniform tint, the remainder of the processes which it passes through, are a series of copying by surface printing from patterns formed upon wooden blocks very similar to those employed by the calico printer. Each color requires a set of blocks; and those oil-cloths with the greatest variety of colors are most expensive.

There are several other varieties of printing which we shall briefly notice as Arts of copying; which although not strictly surface printing, yet are more allied to it, than to that from copper plates.

In one of the modes of performing letter copying, a sheet of very thin paper is damped and placed upon the writing to be copied. The two papers are then passed through a rolling press, and a portion of the ink from one paper is transferred to the other. The writing is of course reversed by this process: but the paper to which it is transferred being thin, it is vissible on the other side, in an uninverted position.

Another mode of copying letters is by placing a sheet of paper covered on both sides with a black substance prepared from lamp-black, between a sheet of thin paper, and the paper on which the letter to be dispatched is to be written. If the upper or thin sheet be written upon by any hard pointed substance, the words written with this style will be impressed from the black paper upon both those adjoining it. The translucency of the upper sheet, in this instance, is necessary to obviate the inconvenience of the reversing of the writing. Both of these arts are very limited in their extent, two or three being the very utmost number of repetitions that they will allow.

Lithographic printing is another mode of producing copies almost unlimited in number. The original which supplies the copies is a drawing on stone, executed with such materials that when water is poured over the stone it shall not wet the lines of the drawing. When a roller covered with printing ink is passed over the stone, the water prevents it from adhering to the uncovered portions; while the ink used in the drawing is of such a nature that the printing ink adheres to it. In this state, if a sheet of paper be placed on it, and it is then passed under a press, the printing ink is transferrad to the paper, leaving the ink used in the drawing adhering to the stone.

Roads of the ancient Peruvians.

The public works of the Peruvians are among the most magnificent and wonderful that have ever existed on the earth. The traveller still finds the remains of temples, fortresses, terraced mountains, great military roads, aqueducts, and other public works, which astonish him by their number, the massive character of the materials, and the grandeur of the designs. Among these their great roads were probably the most remarkable. There were many of these roads, traversing the different parts of the kingdom; but the most considerable were the two which extended from Quito to Cuzo, and thence South towards Chili. One of these roads passed over the grand plateau, and the other along the lowland on the borders of the ocean. The former was much the most difficult achievement, and no doubt a work of far greater labor than the road over the Alps. It was carried over pathless wastes, buried in snow; galleries were cut for leagues through living rocks; rivers and frightful chasms were passed by means of bridges which swung suspended in the air; precipices were scaled by stairways cut in the native bed; ravines of hideous depth were filled up with solid masonry; in short, all the difficulties which beset a wild and mountainous country, and which might appal the most courageous engineer of modern times, were encountered and successfully overcome. The length of this road is variously estimated from fifteen hundred to two thousand miles. It was built of heavy flags of freestone, and in some parts at least, covered with a bituminous cement, which time has made harder than the stone itself. In some places where the ravines were filled up with masonry, the mountain torrents, wearing on it for ages, have forced a passage through the base, and left the superincumbent mass—such is the cohesion of the materials—still spanning the valley like an arch.

Ingenious bridges, made of the tough fibres of the magney, were thrown over the boldest of the streams. These osiers were woven into cables of the thickness of a man's body. These huge ropes, when stretched across the water, were secured in immense buttresses of stone, raised on the opposite banks. Several of these cables, bound together, formed a bridge, which, when covered with plank, and defended by a railing, afforded a safe passage for the traveller. The length of these aerial bridges, sometimes exceeding two hundred feet, caused them to dip with an alarming inclination towards the center, while the motion given by the traveller occasioned an oscillation still more frightful, as his eye wandered over the dark abyss of waters, which foamed and tumbled many fathoms beneath. Yet those light fabrics were crossed without fear by the Peruvians, and they are still retained by the Spaniards over those deep and impetuous streams which are impassible by other means.

The other great road of the Incas, lay through the level country between the Andes and the ocean. The land was low and sandy, but the road was over a causeway, raised on a high embankment of earth, defended on either side by a parapet of clay, and trees and ordoriferous shrubs were planted along the margin, regaling the sense of the traveller with their perfumes, and refreshing him by their shade.

All along these highways, caravansaries, or *tambos*, as they were called, were erected, at the distance of ten or twelve miles from each other, for the accommodation of travellers. Some of these buildings were on an extensive scale, consisting of a fortress, barracks, and other military works. These were evidently intended for the accommodation of the imperial armies, when on their march through the country. These costly and admirable works have been left by the Spaniards to fall into decay, but their broken ruins still bear evidence of their primitive grandeur.

Leisure Hours for Working Men.

We have always been in favor of shortening the hours of labor, and closing stores early, in order to give clerks and mechanics the benefits of evening study and instruction. If they do not achieve it in that way, how are they to acquire knowledge—when and where are they to cultivate the mind and improve the faculties? They understand these things in England, and improve upon the understanding. There the Mechanics who have improved their time, can rise in the world. One of the leading Editors of the Western Review, and the most brilliant writer of the age, was a cooper. One of the principal Editors of a London daily journal was a baker; one of the best reporters of the London Times was a stone mason; one of the most eloquent Ministers in London, was a blacksmith; Joseph Hume was a sailor, and then an apothecary. There is an army of working men now holding high intellectual positions in England.—So have many great Americans sprang from ploughboys and mechanics, but they have had time to improve themselves—leisure to cultivate their minds. This is what our clerks, our apprentices, our laborers want.—They ought not to labor from dawn until late at night—they are jaded and fatigued, they become exhausted, and have no strength or inclination for study.

The Emperor of Russia's Family.

The family of the Emperor Nicholas consisting of four sons and three daughters, were brought up from the cradle by English nurses and governesses, under the superintendence of an old Scotch woman, who was the undernurse to the present Emperor in his infancy This individual held the rank of a general officer, (for everything in Russia is measured by a military scale,) and had been decorated with the order of St. Andrew ennobled and enriched. This woman nevertheless, went a bare-legged servant-girl to Russia, some five and fifty years ago, with a Scotch trader's family, who turned her adrift in St. Petersburg. A lucky chance procured her the station of an under nursery maid in the Emperor Paul's family, when she was placed about the person of the present Emperor to teach him to speak English? His attachment for her was so great, that when he was married, he placed her at the head of his nursery establishment, where she has gone through all the military gradations of rank to her present one of general.

A Newspaper.

A man eats up a pound of sugar, and the pleasure he has enjoyed is ended: but the information he gets from a newspaper is treasured up in the mind, to be enjoyed anew, and to be used whenever occasion or inclination calls for it. A newspaper is not the wisdom of one man, or two men; it is the wisdom of the age, and of the past ages too.

A family without a newspaper is always half an age behind the times in general information, besides they never think much, or find much to talk about. And then there are little ones growing up in ignorance, without any taste for reading.

Besides all these evils, there's the wife, who, when her work is done, has to sit down with her hands in her lap, and nothing to amuse her, or divert her mind from the toils and cares of the domestic circle. Who, then, would be without a newspaper?—*Benjamin Franklin.*

A Huge Animal.

A large elephant was lately shot in Liverpool, England, and when they were dissecting him afterwards, upon driving a knife into his stomach, the gas therein exploded with a report like that of a six pounder, Two ounces of prussic acid had no effect to poison the animal. He was of such gigantic dimensions that three persons have stood within his skull since he was dissected.

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TO CORRESPONDENTS.

"M. G. of N. Y."—The sale of patterns of any patented machine does not confer authority upon the purchaser of the right to manufacture. The right to make, sell and use, is only conferred by a bill of sale, and there is a certain form of the Bill of sale or assignment, which must be registered in the Patent Office within three months after date of sale.

"A H. of N. Y."—We have heard of a divining rod for discovering silver ore, bnt have no faith in one. It is impossible that there can be one. The only influence of that kind is magnetic, and a magnet will indicate iron ore more ready than any other.

If your water is pure, that is, if it comes through gravel, or sand, or rock, the lead pipe is perfectly safe. First try the tests we have given, as the lead pipe is the most durable. The earthen pipes are not so durable, unless sunk deep and free from the influence of the frost, and your part of the country is already dinguished for its great freezing qualities.

"L. A. S. of N. Y."—The inventor of the hydraulic apparatus to which you refer, lives in Hagerstown, Maryland. D. Winder is the name. We are of opinion that nothing will answer your purpose, but a powerful force pump. But if you direct a letter to Mr. Winder, you will get all the proper information, such as price and capacity.

"R. V. I. of N. J."—We would advise you to get a steam engine about 12 horse power. You will find it more profitable than a water wheel in your situation, where there is a scarcity of water for two or three months every year.

"L. M. of Mass."—You can get mechanics in Boston and many other places in the old Bay State, who can fit up and take charge of all kinds of machinery, and invent new improvements too.

"I. S. W. of Ala."—An answer will appear next week.

"G. C. of N. H."—"W. Y. of Ill."—and "J. K. of Mich."—We have answered you by mail.

"S. T. of Pa."—You can find all the information you desire regarding the Patent Laws in Vol. 2, Scientific American. We cannot republish it at your request, when you can find it there.

"V. W. R. of Va"—The transmission of electric currents through water is not very new.

"W. M. D. of Maine."—Application has been made lately for a smoke consumer with the use of the blower for that purpose, and by delay your patent may be lost.

"R. V. L. of N. Y."—It is a new and useful invention, and there can be no doubt of your securing a patent.

"S. J. of Md."—We are not in the habit of giving such information to those who are not subscribers We would not ask you to do a day's work for us without pay. You would snuff at the proposal. "Do then to others as you would be done by."

We have received another excellent article faom the pen of William Montgomery, Esq. which will appear next week.

We have also received an able article on the Nova Scotia Mines, which will likewise appear next week.

Ærial Speculation.

Dr. Solomon Andrews, "President of the Inventors' Institute at Perth Amboy," advertises that he has invented a car for the "Navigation of the Atmosphere," which, when constructed, will be 100 feet long, 40 wide, and 32 high. In order to raise the means to construct it, building lots near the institute are offered for sale. Will this scheme be as great a humbug as the Inventors' Institute or the Kidd bubble.

Western Literary Emporium.

No. 2, for August, of this useful and beautiful monthly is now before us. It contains a beautiful steel engraving of the Colliseum at Rome, and the literary articles are far above mediocrity—they exhibit talent, judgment and sound sense, the latter quality a treasure indeed in these days. It is published at Cincinnati, by J. R. Barnes.

Union Magazine.

The August number of this superb monthly is upon our table—a beautiful mezotint engraving by Sadd, ornaments the first leaf, and a splendid line engraving by Henshelwood the second. There are several other fine wood engravings, which ornament its pages containing an original piece of music engraved expressly for the Magazine.—The Union has some of the best contributors this country produces, and although we have not had an opportunity to peruse this number's contents fully, we can judge from former ones and the list of contributors this month, that that department is in harmony with the engravings.

The Literary American.

This is a new weekly paper published in this city, by J. P. Quackenboss, and is got up in a very neat form.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

To Manufacturers of Cotton.

THE Subscriber, having had some 35 years experience in the manufacture of Cotton Goods, together with building machinery of various kinds, has completed by drawings and specifications, five improvements, (for which he is taking measures to obtain letters patent,) which will reduce the cost of manufacture, in labor and tools used in the art, so that more and better goods can be produced in 10 hours, than has yet been accomplished in the longest day that any one set of hands ever labored. He feels confident of receiving the gratitude of all the lady weavers, who may have the opportunity of working his warp yarn.

He is now ready to commence the superintendence of a mill, anywhere North of Mason & Dixon's line; and would allow any company, who will try his plans, all the profits of one year in the market. WM. HOWARD, Jr.

jy29 2t* 228 Eddy st. Providence, R. I.

Judson's Stave Dressing Machine.

THIS Machine, on which Letters Patent were granted May 1st, 1847, has been in successful operation for the past year, and hundreds of thousands of staves have been dressed by it. It is warranted to dress the same quantity of staves with as little power as any that can be started, also leave the full thickness on thin edges and thin ends, and conform as near to the crooks and twists of the timber as can be desired. The jointing of the machine which accompanies it, has been subjected to the severest test, and pronounced superior to that performed by hand. Application for a patent on the Jointer has been made.

Large quantities of Hogsheads and Shooks made with staves dressed and jointed with their machines have been sold and used to the entire satisfaction of the purchasers.

For rights and machines address the proprietors st their Manufactory, Artizan street, New Haven, Connecticut, where machines in full operation may be seen. JUDSON & PARDEE.

New Haven, July 17, 1848. jy29 3m*

U. S. School Agency,

THIS enterprise is designed to promote the interests of Literary Institutions, by furnishing Teachers, Pupils, Books, &c.

The register exhibits the names of hundreds in the profession who have high testimonials from respectable Institutions where they have officiated in various capacities as Principals, Professors, or Teachers, both in this country and in Europe Perhaps no undertaking was ever commenced under more favorable auspices, and with better prospects of eminent usefulness. It is now known from Maine to Florida, and has induced an extensive correspondence, affording pleasing evidence that it is fast gaining the confidence and patronage of the Literary Institutions of this country. The satisfaction expressed by our numerous respectable patrons affords high encouragement, for in their opinion it must succeed and take an important place among the best enterprises of the age. We respectfully solicit the Circular of every Literary Institution in the Union for gratuitous distribution, also all communications adapted to promote the cause of education. All communications should be post paid.

E. H. WILCOX, Proprietor,

jy22 3t 124 Nassau st., N. Y.

To Cotton Manufacturers.

THE Subscriber will furnish Cotton Manufacturers with his improved Cotton Willow. The fact of its being introduced into most of the best mills in New England is the best proof of its excellence. It is extremely simple in its construction and will do more and better work with a less expenditure of power than any other Willow; it prepares the cotton so much better than any other that there is much less power and repairs needed on the succeeding machinery. It is as safe from fire as a Card, and its form and action are such as to draw all the flyings and dirt from the journals; it will convey the cotton to any desirable distance short of 250 feet. It can be placed in the basement of a mill or other place nearly worthless for other manufacturing purposes, and will blow the cotton into the rooms above. All necessary information given for placing and operating the machine in any peculiar or difficult situation. EDMUND BACON,

Superintendent Quinebaug Manufacturing Co.

j24 tf Norwich, Conn.

Patent Agency.

THE undersigned having established permanent agencies in England, Ireland, Scotland, France and Belgium (with the leading manufacturers and inventors of which countries he is personally acquainted), is enabled to transact all business entrusted to his care with perfect safety and dispatch; and such is the integrity, energy and legal ability of our agents, that the patentee is, in ninety-nine cases out of a hundred, sure to reap a rich harvest from any invention which passes through our hands.

Since the first of March last we have sold three patents in Great Britain for $17,580, and five in France for 38,000 francs.

For integrity, the undersigned refers to:—Horace Greeley, Esq. Tribune Buildings, New York.

CLINTON G. GILROY,

All letters must be post paid, and addressed to Clinton G. Gilroy, 71 Nassau st. New York. jy1 3m*

TALBOT'S PATENT REVOLVING BLIND HINGE.

Important to Builders and others.

THESE Hinges are for opening, closing, locking and completely regulating the blind upon the interior of the house without raising the sash. They are adapted to any kind of house, or style of finish All communications, whether for the purchase of the article, or of Town, County or State rights, addressed to the subscriber, or to J. W. Ingell & Co., Taunton, Mass., will be promptly and satisfactorily attended to.

j3 tf L T. TALBOT, Taunton, Mass.

LAW'S

STAVE DRESSER AND JOINTER.

THE undersigned has perfected and put into very successful operation his Stave Machine.

It will **Dress** and **Joint** Staves of all shapes, kinds and dimensions, and of promiscuous widths, as they come from a mixed pile, at the rate of from 6 to 8 staves per minute, finishing them, before they leave the machine, ready for the truss hoop. They are both dressed and jointed very smoothly and handsomely, bringing each stave of equal width at the two ends without waste of stock and perfectly to correspond with every twist or crook, and with as little power in proportion to the work done, as any other machine.

For rights (which are indisputable,) or machines, address, post paid.

H. LAW, Wilmington, N. C.

N. B A machine will be in operation in New York or vicinity, in the course of the ensuing month.

jy15 2m

Agricultural Implements.

☞ Inventors and Manufacturers of superior Agricultural Impiements may find customers for their goods by applying at the Agricultural Warehouse of S. C. HILLS & CO. 43 Fulton st. m8

STEAM BOILER.

BENTLEY'S Patent Tubular and other Boilers of any size, shape or power, made to order, by SAMUEL C. HILLS & CO.

m8 43 Fulton st.

Lap welded WroughtIron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,

d26 28 Platt street. New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 189 Water to 43 Fulton street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

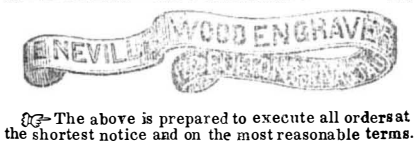
Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

m8 SAMUEL C. HILLS, Patent Agent.

Johnson & Robbins,

Consulting Engineers and Counsellors for Patentees.

Office on F street, opposite Patent Office, Washington, D.C. j17 tf



☞ The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information cencerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

Machinery.

PERSONS residing in any part of the United States who are in want of Machines Engines, Lathes, or any description of machinery, can have their orders promptly executed by addressing the Publishers of this paper. From an extensive acquaintance among the principal machinists and a long acperience in mechanical matters they have uncommon facilities for the selection of the best machinery and will faithfully attend to any business entrusted to their care MUNN & CO. a15

Stave Dressing Machine.

THE undersigned are manufacturing and have now in operation, a machine for **Dressing Hived Staves,** which will dress 126 hogshead or 170 barrel staves per hour, with one horse power, and with two horses will double the number

It will dress crooked and winding staves to perfection, and leave the full thickness on those with thin edge, a desideratum worthy of attention.

The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform fully equal to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to WM. & E. T. FITCH, 2d., New Haven, Conn., or GEO. GILBERT, Westville, N. H. Co., Conn.

j3 3m*

NOTICE.

I have made application for a patent on a machine for turning irregular forms, such as lasts, spokes, &c.: this is to notify all persons who infringe on said machine or right, by making or using, or otherwise, that they will be dealt with according to law.

ALLEN GOODMAN.

Dana, Mass., July 3, 1848. jy8 4t*

TO MACHINISTS AND BUSINESS MEN.

THE advertiser wants a person to join him in experimenting and bringing out some important improvements in the Power Loom, which he believes he can make and for the capital invested would make a reasonable allowance of the right of the same. All communications must be post paid, to W. H. J., Machinist, Lawrence City, Mass. jy22 3t*

PREMIUM SLIDE LATHE.

THE subscriber is constantly building his improved Lathes of all sizes, from 7 to 30 feet long, and can execute orders at short notice.

JAMES T. PERKINS,

Hudson Machine Shop and Iron Works,

m11 Hudson, N. Y.

Ballard's Improved Jack Screw.

PATENTED.

THE advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires,

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS,

Of various sizes, power and price, constantly on hand at the manufactory,

No. 7 Eldridge street, near Division.

m20 tf

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For the Scientific American,

Simple Syrups.

Those who are desirous of making their own Syrups, instead of paying exorbitant prices for adulterated mixtures, may rely upon the following as being genuine.

1. Take of coarse sugar 10 pounds ; water 3 pints Dissolve the sugar in the water with a gentle heat.

2 Take of pure sugar 10 pounds ; boiling water 3 pints. Dissolve the sugar in the water with the aid of a gentle heat.

3. In making syrups, for which neither the weight of the sugar nor the mode of dissolving it is specified, the following rule is to be observed :—Take of refined sugar reduced to a fine powder, 29 ounces ; the liquor prescribed 1 pint. Add the sugar by degrees, and digest with a moderate heat, in a close vessel, until it is dissolved, frequently stirring it ; set the solution aside for twenty-four hours, take off the scum, and pour off the syrup from the feces, if there be any.

4. Take of sugar 2½ pounds ; water a pint. Dissolve the sugar in the water with the aid of heat, remove any scum which may form, and strain the solution while hot.

5. Take of pure sugar 600 parts ; water sufficient ; whites of two eggs Beat the albumen with 3000 parts of water, and add two thirds of the mixture to the sugar in a copper vessel, together with 1000 parts of water ; heat over a gentle fire until the sugar is dissolved, stirring from time to time, and taking care that it does not boil before the solution is complete ; when it froths up damp the fire, and add by degrees the solution of albumen in reserve, remove the scum from time to time, and evaporate until it has a specific gravity of 1260 while boiling.

6. Take finest white sugar 1000 parts; pure water 500 parts ; prepared animal charcoal 64 parts. Dissolve the sugar in the cold water, add the charcoal, and after twelve hours filter the syrup through paper.

Syrups whose density is not precisely determined by the process should have the specific gravity 1.261 when boiling, and about 1.340 at ordinary temperatures. They should be preserved in a place the temperature of which never exceeds 55°.

SARSAPARILLA SYRUPS.

Compound.—Take of sarsaparilla, bruised, 2 pounds; guaiacum-wood, rasped, 3 ounces ; hundred-leaved roses, senna, liquorice-root, bruised, each 2 ounces ; oil of sassafras, oil of anise, each 5 minims ; oil of patridge berry 3 minims ; diluted alcohol 10 pints ; sugar 8 pounds. Macerate the sarsaparilla, guaiacum wood, roses, senna, and liquorice root in the diluted alcohol for fourteen days ; then express and filter. Evaporate the tincture by means of a water-bath to four pints ; filter, add the sugar, and proceed in the manner directed for syrup. Lastly, having rubbed the oil with a small quantity of the syrup, mix them thoroughly with the remainder.

Compound syrup of sarsaparilla may also be prepared in the following manner :—

2. Take of sarsaparilla, ground into coarse powder, 2 pounds; guaiacum-wood, rasped, 3 ounces ; hundred-leaved roses, senna, liquorice root, each in coarse powder, 2 ounces ; oil of sassafras, oil of anise, each 5 minims ; oil of patridge berry, 3 minims ; water a sufficient quantity ; sugar 8 pounds. Mix the sarsaparilla, guaiacum-wood, roses, senna, and liquorice root, with three pints of water, and allow the mixture to stand for twenty-four hours.—Then transfer the whole to an apparatus for displacement, and pour on water gradually until one gallon of filtered liquor is obtained Evaporate this to four pints; then add the sugar, and proceed in the manner directed for syrup. Lastly, having rubbed the oils with a small portion of the syrup mix them thoroughly with the remainder.

3. Take of sarsaparilla 1000 parts ; dried flowers of borage 64 parts ; hundred-leaved roses 64 parts ; senna leaves 64 parts ; anniseed 64 parts ; white sugar 1000 parts ; honey 1000 parts. Slice the sarsaparilla and infuse it in 6000 parts of water for 24 hours ; boil for a quarter of an hour and strain ; boil the residue with 5000 parts of water a second and a third time, and pour the last boiling decoction upon the borage, senna, roses and anniseed ; infuse for twelve hours, and express Decant all the liquors, and evaporate to 3000 parts. Allow the concentrated solution to deposit ; decant ; add the sugar and honey, and make into a syrup, which clarify with the white of eggs, and strain.

4. *Simple.*—Take of alcoholic extract of sarsaparilla 192 parts ; water 2000 parts ; white sugar 4000 parts. Dissolve the extract in the water with the aid of a gentle heat ; filter the solution while warm, add the sugar, and form into a syrup.

Practical Receipts.

Prepared by a German Chemist for the Scientific American.

To Polish Fine Furniture.

The simplest and best thing for polishing fine parlor furniture is milk. After cleaning the furniture from dust and dirt, fresh milk, which has not been skimmed, is spread upon the wood, which is then rubbed with a fine woolen rag, until it is completely dry. This has to be repeated several times. Milk offers, besides not producing an offensive smell, the advantage that the furniture can be used again without delay.

To Clean Oil Paint.

The best thing for cleaning oil paint is a sponge dipped in ammonia which has been copiously diluted with water. Soap dissolves the turpentine as well as the linseed oil, and not only destroys the smooth and shiny surface, but exposes also the white lead to the influence of the water and air, and is therefore not practical.

A Beautiful Art.

Signor Gamberini, an Italian gentleman, has commenced a new and beautiful ornamental art styled "Papiro Grophia." It consists of cutting figures of the most elaborate designs upon black glazed paper, to be thrown out in relief upon light ground. The subject is first carefully drawn out upon the reverse surface, and then cut in with such exquisite nicety as to delineate the most minute line and shade. Flowers, foliage, landscapes, and intricate groups of the antique are executed with almost the minuteness of finish of the engraving, and require full as much care, time, and talent.

Cheap Paint.

Take two quarts skimmed milk, 2 ounces fresh slaked lime, 5 pounds whiting; put the lime into a stoneware vessel, pour upon it a sufficient quantity of milk to make a mixture resembling cream; the remainder of the milk is then to be added; and lastly, the whiting is then to be crumbled and spread on the surface of the fluid, in which it gradually sinks. At this period it must all be stirred in, or ground as you would other paint, and it is fit for use. There may be added any coloring matter that suits the fancy.

It is to be applied in the same manner as other paint, and in a few hours will become perfectly dry. Another coat may then be added, and so on until the work is completed.

Improved Method of Making Charcoal.

A mode of manufacturing this substance in France, is to fill all the interstices in the heap of wood to be charred, with dry powdered charcoal ; then cover the whole mass with earth or sods, and burn it in the usual way. By this means, much of the access of air is prevented, and a saving of ten per cent in volume, as well as weight of charcoal, will be gained over the ordinary modes.

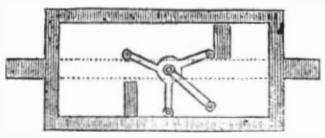
Preserving Dried Fruits.

The most effectual mode is, when the fruit is dry, and ready for packing away, as you put it into the barrel or sack, sprinkle it with whiskey—say at the rate of a pint to a bushel.

Cherries, raspberries, and currants have been kept for two or three years in this way; We suppose any kind of spirits would answer the purpose, as the worms appear to go in for temperance.

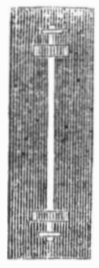
MECHANICAL MOVEMENTS.

Circular and Traverse Motion.



This is a modification of traverse motion, produced from the revolutions of the revolving arms, which strike alternately upon blocks fixed upon the traversing bar. There is a slot in the traversing bar which allows it to move on the axle of the revolving arms. Each arm strikes the upper block and drives the bar to the right, then the lower block and drives the bar to the left, thus operating the bar, producing a traverse from a circular motion. The principle is clear, although the contrivance is not very fine, and beside it is somewhat antique, but more valuable on that account by some.

Vertical and Horizontal Revolving Motion.



This cut represents two pulleys placed on a vertical shaft. When the shaft is in motion, the two drums have a contrary motion from that of the shaft in one sense, and with it in another. If motion is desired to be communicated to another vertical shaft from the one represented, it is done by a band placed round the pulleys, across the perpendicular of the shaft.

Curious Mode of Making Butter.

If I want butter only for my own breakfast I lay a sheet of blotting paper, upon a plate, and pour the cream upon it. In a short time the milk filters through, and the butter is formed. If I wish to expedite the operation, I turn the paper over gently upon the cream, and keep it in contact for a few moments, and then press upon it, and the butter is formed in less than two minutes. If you submit to severe pressure by a screw press, it becomes hard as when frozen. I cannot think but the simplicity of this mode of proceeding would be universally adopted, if any better material than blotting paper could be thought of for the filter—the paper adhering too firmly to the butter, and the finest muslin admitting the passage of the cream. A GARDNER.

Hemlock Hedges.

A writer in the Gennesse Farmer describes a hedge composed of the hemlock, at a nursery in Toronto, Canada, which is 150 feet long, 5 feet high, and 3 feet thick at the base tapering gradually towards the summit. The editor of the Farmer says in a note :—

For the formation of a beautiful green hedge it (the hemlock) cannot be surpassed. It has not the power of the Norway spruce, and will not answer the purpose of fencing so well ; but where great strength is not required, and ornament the chief desideratum, the Hemlock will answer admirably. The specimen our correspondent alludes to, in the Toronto nursery, has often attracted our admiration. It has been four years planted, shorn only twice, and is, at this moment, a green wall, five feet high, without a blemish—one of the most elegant enclosures for a lawn or flower garden imaginable.

Benjamin Wheeler, Esq., of Framingham, has a beautiful specimen of a Hemlock Hedge. We are not able to give a statement of its age or dimensions, but, when we saw it about two years ago, it was in a flourishing condition, and an admirable ornament to his grounds.

Corn Beer.

'Tis good and harmless, withal cheap and easily made. Boil 3 pints of corn until the skin slips : take it out of the water, and put it into a four gallon jug or demijohn ; cover the corn with water, thus to remain until fermentation has taken place, which is by bubbles rising, gas escaping ; then add water, sweetened to the taste. As the beer is drank out of the vessel, add sweetened water every night. When the corn is first used, the drink will be sometimes thick and oily ; throw this away, and add more sweetened water. A few trials will give to any housekeeper the knowledge as to sugar, and a few days will give the quantity of sweetened water to add each night, after the last draught be taken. And how many gallons of beer will these three pints of corn make during the year? Multiply each day by full two gallons, and we guess you will come near it. The three pints will do for twelve months constant use.

Soft Ginger-bread to eat with Corn Beer.

Take 4 tea cups full of flour, 2 of molasses, 1-2 cup of butter, 2 of buttermilk, 1 of thick cream, 3 eggs. 1 table spoonful of ginger, and the same of saleratus. Mix them all together, except the buttermilk and saleratus ; the latter should be dissolved in the buttermilk, and added to the residue. Instead of 2 cups of molasses, use one of sugar and one of molasses. Bake soon after mixing, and eat warm or cold.

White Blackberries.

The Editor of the Alabama Planter, has received a sample of a white berry, of the blackberry species. The berry is stainless, sweeter than the common blackberry, and is of the color of the inside of the lemon. It is superior in every way, to the ordinary black berry. Indeed, this is infinitely beyond anything of its class, and will be sought after as a most delicious luxury. The berries are large, abundant and beautiful on all the bushes where they grow in Alabama.

Destruction of Mice.

A curious fact, is mentioned of the extraordinary number of 28,071 mice having been taken or caught from September to January in the Dean forest, Gloucestershire, over an area of only 1,692 acres. The successful method adopted there was boring holes in the ground, twenty inces deep, wider at the bottom than at the top, which prevented them from getting out when once in, and into which was dropped some food.

It has recently been estimated that all the salt of all the oceans of the world, if condensed into a solid state, would form a mass of 9,000,000 cubic geographical miles, more than twice as large as the whole Himalaya mountains.

THE SCIENTIFIC AMERICAN

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